Low Intensity of Running Favors for Anabolic Response after Resistance Exercise

Chun-Chung Chou[1]; Siang-Sheng Wu[2]; Te-Sheng Chen[3]; Jung-Charng Lin[1]
[1]Chinese Culture University; [2]National Taiwan Normal University; [3]National Taiwan Sport University
Classification of First Author (Doctoral Student)

Abstract

Purpose: Whether active or passive recovery after resistance exercise may affect anabolic and catabolic response is not clear. The aim of this study was to examine the effect of active (moderate or low intensity running) and passive (rest) recovery after resistance exercise on testosterone, cortisol and testosterone/cortisol ratio (T/C) responses. Methods: By counter-balanced design, nine recreationally active males (age: 23.89 ± 0.86 yrs of age; height: 172.89 ± 1.30 cm; weight: 68.37 ± 2.72 kg; $\dot{V}O_2$max: 56.56 ± 1.70 ml/kg/min) completed three tests including: 65% $\dot{V}O_2$max running (moderate intensity, RM), 40% $\dot{V}O_2$max running (low intensity, RL) and passive rest (RR) *following 3sets of four resistance exercises (bench press, leg extension, front lat pulldown and leg curl, 12 repetitions at 60%1RM with 2min rest among all sets and exercises)*. In order to evaluate the systemic anabolic status, we measured plasma testosterone, cortisol and T/C ratio before resistance exercise (baseline), immediately after either active or passive recovery (post), and 30min after recovery (rest). Results: In RM group, T/C was significantly lower (decrease 18.5%, $p<.05$) than baseline at rest. In RL group, T/C was significantly higher (increase 79.1% at post and increase 123.2% at rest, $p<.05$) than baseline at post and rest, respectively. At rest, the T/C of RL was higher than RM (RM: 0.49 ± 0.12, RL: 1.08 ± 0.19, $p<.05$). Conclusions: Resistance exercise and low intensity aerobic exercise is more favorable to enhance anabolic response during post-exercise recovery.

Keywords: testosterone, cortisol, T/C ratio, aerobic exercise